

The work of the American Expeditionary Force's forest engineers proved critical to the Allied effort in France. Celebrated in their day for the heroic task of supplying lumber for U.S. troops, today they are little more than a footnote in forest history. But the authors believe that what the forest engineers experienced and learned during World War I deserves re-examination, and end this summary history by proposing some questions for historians to consider.

“WE ARE HELL ON CUTTING DOWN TREES”

UNEXPLORED QUESTIONS ABOUT THE FOREST ENGINEERS’ EXPERIENCE IN THE FIRST WORLD WAR

In 1978, historian David Clary wrote that “regrettably, there has been no major study of the forestry units of the American Expeditionary Force (AEF) during World War One.”¹ Forty years after his short piece was published in the *Journal of Forest History*, his call has remained unanswered. Despite the emergence of environmental history

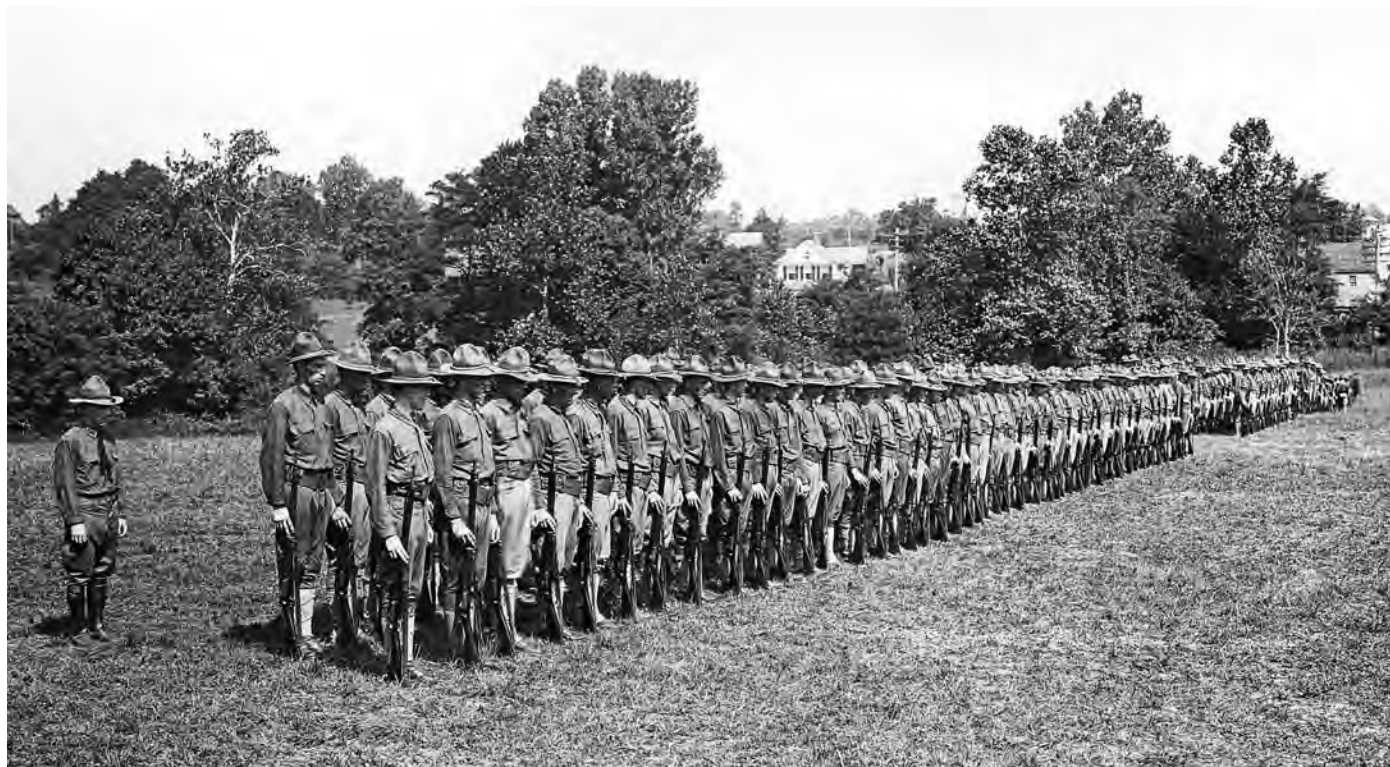
as a major field of historical inquiry and the publication of many important works on forestry, not even an article-length academic study of the AEF Forestry Division—officially designated the 20th Engineers—has appeared.

A thorough treatment of this subject is beyond the scope of this brief article. The purpose here is to give a brief narrative of the 20th Engineers from their formation in 1917 to their demobilization in 1919, introduce to readers several notable people who organized it, and then pose questions about possible influences of the 20th Engineers’ wartime experiences on postwar American forestry practices and the forest environment that today’s historians might consider.

WOOD GOES TO WAR

In August 1914, as European nations took up arms, the United States was neutral. But myriad factors, including Germany’s renewed use of unrestricted submarine warfare against neutral shipping, President Woodrow Wilson’s perceptions of America’s role in the postwar world, and the shocking Zimmermann Telegram, propelled the United States into the war on April 6, 1917. American soldiers entered combat in great numbers only in late May 1918, thirteen months after war was declared and only six months before the armistice ended it. More than two million American troops served in AEF units on the Western Front in France. They fought in places such as Chateau Thierry, Belleau

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Not all officers of the Tenth and Twentieth Engineers came from the U.S. Forest Service. First Lieutenant John G. Kelley, of the Booth-Kelley Lumber Company, at the far right, came from private industry. The men are shown during basic training at the campus of American University in Washington, D.C., before shipping out.

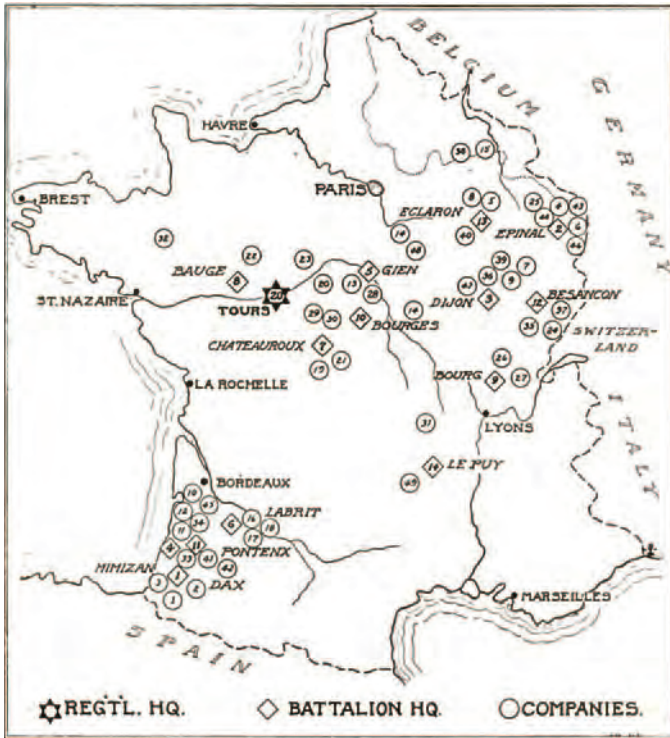
Wood, San Michael, and the Meuse-Argonne and have deservedly attained fame in American military history. Approximately 116,700 American men died overseas.

In World War I, arguably the first war between industrialized societies, victory in the field depended on two things: the capacity to replace human losses and the ability to keep armed forces supplied with materiel.² And supplying materiel was inseparably linked to the production of and access to wood, a challenge perhaps as old as organized warfare itself. U.S. merchant ships brought food and supplies, including munitions—millions of shells—packed in wooden boxes. They tied up at wooden docks, and their cargo was stored in wooden warehouses. Wooden boxcars transported soldiers on railroads made from millions of wooden ties that crossed chasms on wooden trestle bridges. Trucks negotiated the notorious French mud on wooden roads. In camp, soldiers slept in wooden barracks and ate in wooden mess halls while seated on wooden benches. At the front, soldiers fired rifles with wooden stocks, drank from wooden casks, and burned enormous quantities of fuelwood to keep warm during the cold French winters. Troops protected their lines with tens of thousands of miles of barbed wire held in place with wooden stakes, lined 400 miles of trenches with wooden wall supports, covered the mud with wooden planks, took shelter in bunkers protected with wooden beams and roofs, and dug hundreds of miles of wood-framed tunnels under enemy lines. Meanwhile their officers communicated via telephone and telegraph lines supported by tens of thousands of wooden poles, and fledgling air corps pilots reconnoitered enemy positions and engaged in dramatic aerial combat in airplanes constructed largely of wood and fabric.

WOODSMEN GO TO WAR

The U.S. Army was ill prepared to enter the maelstrom in April 1917: its peacetime force of about 153,000 had to be expanded into an army of several million men. And so it was with the forestry regiments as well. None existed at the outbreak of the war. Given the amount of wood needed by the Americans troops, and the threat to trans-Atlantic transport posed by German submarines, shipments from the United States had to be supplemented by local supplies. Like their Canadian counterparts, who had entered the war a year earlier, American troops would have to rely on wood production from French forests. Immediately after the U.S. declaration of war, the British and French urged the United States to form a forestry regiment to assist in the production of wood for their use at the front.³ Government officials responded quickly, and by July 1917, Henry Graves, chief of the U.S. Forest Service, had been commissioned as a major (and was soon promoted to lieutenant colonel). Soon thereafter, Graves arrived in France, along with several other Forest Service men who had traded Forest Service uniforms for military ones, to begin preparations for logging and lumber production.

In an article published a few months later, Graves greatly understated the challenges, perhaps to assuage concerns on the home front. Facing almost inconceivable logistical problems, Graves and his staff, augmented in August 1917 by still more Forest Service leaders, including his associate forester, William B. Greeley, organized transport, contracted with French foresters and timberland owners, and prepared for the daunting task of supplying lumber for the Americans.⁴ The arguments over prices and access between the Americans and their French hosts became heated at times. Greeley vented in his diary a month after arriving, “Hell was popping in office this morning over misinformation on lumber



This map of France shows the location of the regiment's various units at the time of the armistice. The dotted line near the Belgian border shows the frontline as of about July 1918, before the Allies pushed the Germans back.

shipments given us by French and the attitude of Gen'l. Petain toward refusal of all American requisitions." This, a day after complaining about their "apparent double-dealing" over lumber.⁵

Major Barrington Moore, who accompanied Graves to France, gave this blunt assessment after the war: "Everything was done under the utmost tension and still not rapidly enough." To his dismay, he confronted inadequate docking space that required "miles and miles" of new wharves, and he was appalled that the French had agreed to contribute (and charge for) the standing timber only—they offered no labor or infrastructure, and no logging railroads existed.⁶ The French objected to American plans to practice clearcutting and insisted on the use of French selection harvesting methods in both government and private forests.

But for the willingness of the superbly organized Canadian Forestry Corps, which had begun operations the summer before, to assist their American counterparts in everything from establishing liaisons with the French to allowing the Americans use of Canadian sawmills until their own arrived, it is questionable whether the AEF's Forestry Division could have organized itself quickly enough to have made a meaningful contribution to the war effort in 1918. General John "Blackjack" Pershing, the commander of the AEF, frantically cabled his superiors in July 1917 that if the problem of wood supply was not solved immediately, disaster would be the result. With the Allied armies tottering from manpower shortages and about to absorb what would be the last great German offensive of the war, Pershing nonetheless demanded that the transportation of fighting men be halted until an adequate force of "forest soldiers" had been sent to initiate a crash program of lumber harvesting and production. Lumberjacks, engineers, and unskilled laborers were all part of this initial requisition.⁷ Washington complied. In the end, the Forestry Division had to be self-sufficient in every way.

"THE LARGEST REGIMENT IN THE WORLD"

Back in the United States, the call went out for volunteers from the ranks of experienced lumbermen to join what eventually came to be called "the largest regiment in the world." In response to the initial British and French requests for 1,000 men each, the regiment was initially formed as the 10th Engineers and first mustered at American University in Washington, D.C. The commanders of the AEF soon recognized that the need for lumber would require a substantially larger unit, and the regiment was expanded. The first men landed in La Havre on October 7, 1917, and were immediately transported via rail for thirty-six hours nonstop—forty men per boxcar with no toilet facilities—to Nevers in central France to set up their first camp.⁸ By November 1, all 7,500 men of the 10th Engineers had arrived. Deployed throughout France, after building lumber camps essentially from the ground up, the 10th Engineers produced its first lumber on November 25 near Levier, using a small borrowed French sawmill. The first American mill began producing two days later near Mortumier.⁹

As American mills came on line, the first detachments of another forestry regiment, the 20th Engineers, began arriving in France on November 25, 1917. The speed with which the foresters of the AEF began to produce lumber almost defies comprehension. Beginning with two mills in November 1917, the 10th and 20th Engineers brought an average of ten new sawmills into production every month. Fifty-nine mills were in operation by the time the German army's last great offensive was halted at Chateau Thierry at the end of May 1918, and eighty-one by the time the Allies' final attack began in October 1918.¹⁰ Anticipating an even greater need for wood production, the two forestry units were combined into the 20th Engineers that same month. Plans were under way to recruit additional men to bring the total to more than 42,000 by July 1919. At the time of the armistice, the 20th Engineers numbered 30,145 enlisted men and 514 officers.¹¹ It was the largest division-sized military unit in the world.

The 20th Engineers' production numbers are staggering. In just over one year of production it rendered 218,211,000 board feet of finished lumber for docks, buildings, roads, bombproofing, and tunnel supports; 3,051,187 standard-gauge railroad ties and 954,667 narrow-gauge railroad ties; 39,095 pilings for wharves and docks; 340,000 cords of fuelwood; enough poles to string 1,984 miles of telephone and telegraph wire; and 1,926,603 pieces of "miscellaneous round products."¹² It was a very close-run affair, however. Had the war continued for another year, the 20th Engineers would have had to begin logging in steep mountain terrain and producing lumber from inferior stands of trees, and demand for lumber might have outstripped supply. Greeley and other high-ranking officers viewed with trepidation their orders to procure more lumber from the declining supply of easily accessible standing timber; they argued that wartime demand could not be met without importing lumber from the United States, and they expressed relief when the armistice rendered these concerns moot.

The esprit de corps of the Forest Engineers rivaled that of any fighting unit in the AEF. Recruiting posters set the expectations, proclaiming that the volunteers were "first in emergencies." After the war, not surprisingly, officers writing of their units' morale contended that it was only the knowledge of the great and necessary service they were providing to the fighting men at the front that kept many of them from leaving their units and joining in the fight themselves. Graves once overheard a man mutter, "We're



GEORGE S. KEPHART, KEPHART7, FOREST HISTORY SOCIETY PHOTOGRAPH COLLECTION

After arriving in France, the men rode for thirty-six hours straight on a train, with forty men to a boxcar and no toilet facilities. Forest engineer George Kephart took this photograph of the men disembarking after riding from Le Havre to Nevers, on October 29, 1917.

not much on drill but we are hell on cutting down trees.” A Forestry Division veteran submitted the following doggerel to the *Stars and Stripes* ten years later:

*I surely ain't much of a soldier
Er else they wuld give me a gun
Instead of an axe an a crosscut
Fer fightin against the durn Hun ...*

*And yit I just cain't help a-thinkin
Of what in the devil we'd do
With nothing but crosscuts and axes
If ever them Botches got through.¹³*

Yet at times the men expressed their willingness to fight, something supporters of the forest industry emphasized after the war. “Every one of the more than 18,000 who were in the regiment at the time the armistice was signed had been anxious to get to the front,” wrote Percival Sheldon Ridsdale, editor of *American Forestry* magazine.¹⁴

Patriotism and can-do optimism were measured not in the number of enemy killed or captured or a successful advance into enemy territory, but by how many board feet a mill could produce and how quickly it could resume production after being moved. Competitions between units resulted in some truly extraordinary feats. One sawmill halted production, moved twenty-five miles, and resumed sawing within forty-seven hours. In another instance a 20,000-foot mill—machinery designed to produce 20,000 board feet of lumber during a ten-hour shift—used three crews to cut in one twenty-four-hour period 177,486 board feet of lumber, almost nineteen times its designed production capacity.¹⁵

When the Army medical staff admonished the Forestry Division's commanders that they were working their men too

hard, these hardened lumberjacks and millworkers scoffed—and worked harder still.¹⁶ The production figures bear this out. At the beginning of 1918, the AEF had set a production quota of ten million board feet per month. By November, the Forestry Division's eighty-one sawmills were producing more than two million board feet of lumber *per day*. “Here comes the knockout,” proclaimed one contemporary cartoon of an angry Uncle Sam striding across the Atlantic carrying a spruce club; another showed lumberjacks hacking away at a tree that resembled German Kaiser Wilhelm II.

But despite their status as noncombatants, there were casualties. Several died of spinal meningitis on the 10th Engineers' voyage overseas in September of 1917, and 150 had to be left behind in quarantine in Glasgow. Sawmills a few miles from the front came under artillery bombardments, and several men working behind the lines were shot by German snipers during the battle of the Meuse-Argonne in October and November 1918. In February 1918, 230 American troops, including 95 men of the 10th Engineers, died when a German submarine torpedoed their transport ship, the *Tuscania*, off the coast of Ireland.¹⁷ And of course there was the largely unrecorded wastage of men crushed by falling timber, maimed by whirring steel blades six feet in diameter, or injured by other causes. Altogether, approximately 375 men of the 20th Engineers perished during World War I—not including those who died during the great influenza epidemic on their way back to the United States.¹⁸

One little known fact about the Forestry Division is that African Americans served in it at a time when the U.S. Army was ostensibly segregated and African American troops usually worked as laborers in rear areas—the 369th Harlem Hellfighters being a notable exception. Incorporated into the Forestry Division as Service Auxiliaries, African Americans were mostly relegated into labor units and fuelwood-cutting companies. “But several sawmill crews



This fuelwood crew was from Company A with the 503rd Engineers, photographed in Mortumier.

composed largely or entirely of black soldiers made exceedingly creditable records,” wrote Greeley in a forestry magazine shortly after the war.¹⁹ He also wrote to a nongovernment agency that was assisting returning lumbermen with finding jobs that 800 African American “Engineer Service Troops which have been employed upon forestry operations” would need jobs after the war, too.²⁰

THE POSTWAR YEARS

Demobilization came swiftly after the November 1918 armistice. All members of the former 10th Engineers had embarked for the United States by February 1919. The rest of the 20th Engineers remained behind to shut down milling operations, remove equipment, clean up logging and milling sites and camps, and settle accounts with French authorities. The last AEF lumber was milled in May 1919, and the troops of the 20th Engineers were all back home by the end of that July.²¹ Their duty done “over there,” it was time to come back to the United States and reenter society “over here.” Career opportunities for many were promising: the lumbering industry launched a campaign to attract unit veterans by promising them employment on their return.²² However, the economic depression that hit the domestic lumber market after 1926 may have altered many veterans’ plans.

Of the thousands who had served, only a handful were in a position to apply what they had learned in France to their own nation’s forests. Some veterans of the 20th Engineers, including Greeley and Graves, reflected on their interactions with French foresters and their forestry techniques. After returning to the United States in mid-1918 to resume leadership of the Forest Service, Graves wrote that the French harvesting methods used by the AEF were “finer and more careful than those of America.”²³ Captain Ralph Faulkner argued that American foresters needed to learn “a lesson from France” and cited an instance of how early-nineteenth-century French forestry officials had reseeded sandy

wastes near Bordeaux and transformed them into immense and profitable forests. Taking American policymakers to task, he suggested these reforestation methods be used because they represent a “sane forest policy.”²⁴

Greeley contributed a chapter about the American war effort to a 550-page treatise on the superiority of French forestry published by Theodore Woolsey, who also served as a major in the 20th Engineers, in 1920, the year Greeley succeeded Graves as chief forester. In his *Studies in French Forestry*, Woolsey documented French forestry laws and practices, including those dealing with forest fires. In France’s Mediterranean provinces, which Woolsey said were similar to “our Southwest” because of the dry conditions in the summer, “surface burning” (what is today called prescribed burning) “is expressly forbidden.” Further, “An incendiary fire in a forest is punishable by imprisonment at forced labor for life,” Woolsey recorded, “a distinction which well illustrates the French viewpoint toward forest conservation.” However, he did offer that the penal code was “more terrifying on the statute books than in actual enforcement.” As for logging, the government did not dictate how a private landowner should cut timber, he noted, but it did hold the owner responsible “for not destroying his forest or converting the land to other uses without prior warrant from the State.”²⁵

In his memoirs written thirty years later, Greeley echoed Woolsey, saying the French approach to logging was comparatively conservative and regimented. Recalling his dealings with the French during his military service, he recalled: “We had many arguments with the French foresters over cutting requirements and I found myself on the other side of the table from similar controversies with loggers back home. The Frenchmen were understanding and realistic—and mighty good woodsmen.”

Understandably so. France had limited land and limited timber supplies, and strict management of such a vital resource was necessary to ensure future timber supplies. The profligate ways of the Americans, who were so accustomed to clearcutting their



Unlike French landowners, who were not told how to cut their timber by the government, the Americans had to follow French dictates and cut trees as close to the ground as possible in order to get the most amount of wood. The Americans were used to cutting at a more comfortable height.

way through a forest, were not welcomed. Recalled Greeley, “A grizzled *conservateur* said with a fatherly smile, to a bunch of impatient Americans: ‘Our forests have fought several wars before this one.’” When it came to “issues between their established regime of timber culture and exigencies of Allied manpower or speed in getting wood to the front, the forest always won out.”²⁶ The French, it seemed, put sustainability ahead of short-term profit.

The wartime experience changed many foresters’ outlook. Before the war, Forest Service leaders criticized the lumber industry for its rapacious attitude towards forests and many both inside and outside the agency called for regulating cutting on private land. But after the war, according to historian David Clary, attitudes toward industry softened. The nation and Congress both having turned more conservative after the war, passing strict logging statutes was unrealistic. Lumbermen were not necessarily to blame for all of the industry’s problems, as some asserted, and in fact needed assistance. “Greeley,” notes Clary, “was a pragmatic man, inclined to attempt only the possible.”²⁷ What did seem possible and worth pursuing in the 1920s was for the Forest Service to work more closely with states and private industry, particularly to eliminate forest fires. Thus Chief Graves and his hand-picked successor Greeley favored federal-state-private cooperation for fire protection. The futility of that effort would not become evident for several decades.

A FEW QUESTIONS FOR FUTURE RESEARCH

Forest Service historian Harold Steen wrote in 1976 that the Forest Engineers’ overseas exploits constituted “a colorful episode but [one that] adds little to the history of the Forest Service.”²⁸ However, the second and third chief foresters of the United States—Henry Graves and William Greeley respectively—both commanded the 20th Engineers, and many other Forest Service officials—including Greeley’s Forest Service successor Robert Y.

Stuart—served under them during the war. Given their stated admiration of French forestry policies and regulations, the same ones laid out by Woolsey and Faulkner, a closer examination of the development of postwar Forest Service policies, especially those governing fire control and techniques for preventing fires, merits a reconsideration.

Greeley, Stuart, and a few others who served in the 20th Engineers had also served on the front lines of the August 1910 fires, which burned three million acres in Montana and Idaho over a three-day period. The devastating yet galvanizing event, in which more than 80 firefighters died, prompted Forest Service leaders to claim that had they had enough men and tools, disaster could have been averted. Under Graves, and subsequently Greeley and Stuart, the agency embraced a policy of all-out fire suppression—a policy that contributed to the buildup of fuel loads, altered ecosystems, and left many forests in poor health. Though the policy ended in the early 1970s, in many ways it was too late, and more than a century later, the nation is still living with the consequences. Legacy aside, does the interaction between American and French foresters represent a missed opportunity to have embraced long-term sustainability of America’s national forests and to lessen the likelihood of catastrophic fires? Did forestry leaders’ faith in mechanization and technology, employed to success in defeating the German enemy, influence their thinking about fighting wildfires in any way? In short, what could Forest Service leaders have learned in France about fire management that they could have employed at home?

Other questions for further research arise as well. How seriously did U.S. Forest Service officials consider adopting and applying French silvicultural practices after the war, and why did they decide to either adopt or reject them? Could the French codes regarding forest and timber management have been transplanted to the United States to great effect on private lands?



The Mortumier sawmill in action. The mill was north of Gien in central France, a safe distance from the fighting.

Some foresters visited the battlefields. What effect did that have? Did they see parallels between the blasted landscapes in France and the clearcut forests and fire-ravaged lands of home? The 1920s saw a boom in recreational use of national forests. Did the war experience influence thinking about the role of forests as places to visit for psychological refuge?

What opportunities were there for African Americans who served in the division and worked in the mills? How much intermingling occurred between white and black units? Did they share camps or barracks? Do the answers change or reinforce our perceptions of segregation in the armed forces during World War I as a whole? What happened once these African Americans returned to the United States? Could they find jobs in the mills and woods?

Thinking more broadly, what became of the enlisted men and lower-ranking officers of the 20th Engineers who returned to the Forest Service and private industry after the war? Did any practice different forest management techniques? Did they leave behind diaries and other primary sources that would shed light on their experiences?

Perhaps Harold Steen is correct in asserting that the Forestry Division's wartime experiences had little influence on the subsequent history and policy of the Forest Service. But until this topic is more fully explored, we cannot definitively say. □

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NOTES

1. David A. Clary, "The Woodsmen of the AEF, A Bibliographical Note," *Journal of Forest History* (October 1978): 185.
2. Military historians generally cite the American Civil War as the first industrialized war, but the industrial capacity of the North was so overwhelming that only one side might be considered mechanized.
3. John Guthrie said that the New England Sawmill Units—lumberjacks dispatched from six New England states who contracted individually with Britain to harvest wood in Scotland and France—sailed for there in May 1917, one month after the United States declared war. This was before the British and French requests for the United States to form their own units. See John Guthrie et al., "The Carpathians: Tenth Engineers (Forestry) A.E.F.—1917–1919, Roster and Historical Sketch," Washington, DC (May 1940), 3. There is also a reference to the units in the official regimental history of the 20th Engineers, but that account has them entering service after the British and French appeal. "The New England Sawmill Units in Scotland," in Perez Simmons and Alfred H. Davies, ed., *Twentieth Engineers, France, 1917–1918–1919* (Portland, OR: Twentieth Engineers Publishing Assn. [1920?]), no page numbering.
4. Henry S. Graves, "Graves Describes Work of Forest Regiments," *The Timberman*, April 1918, 36.
5. George T. Morgan Jr., "A Forester at War—Excerpts from the Diaries of Colonel William B. Greeley, 1917–1919," *Forest History* 4, no. 3/4 (Winter 1961): 6.
6. Barrington Moore, "French Forests in the War," *American Forestry*, June 1919, 1113–15, 1119–20.
7. Moore, "French Forests in the War," 1113–15, 1119–20.
8. Percival Sheldon Ridsdale, "How the American Army Got Its Wood," *American Forester*, June 1919, 1147.
9. Henry Graves, "The Forest Engineers," *American Forestry*, June 1919, 1109.
10. "20th Engineers (Forestry) Record of Development and Production," *American Forestry*, June 1919, 1111.
11. Guthrie et al., "The Carpathians," 6.
12. *Organization of the Services of Supply: American Expeditionary Forces*, Monograph 1 (Washington, DC: Government Printing Office, 1922), 49, 84.
13. *Stars and Stripes*, July 26, 1928.
14. Ridsdale, "How the American Army Got Its Wood," 1140. The Forestry Division used mills of 5,000-, 10,000-, and 20,000-foot capacity.
15. Ridsdale, "How the American Army Got Its Wood," 1141.
16. James A. Woodruff, "General Order #3, An Appreciation: To the Officers and Men of the Twentieth Engineers and Attached Service Troops," December 1918.
17. Guthrie et al., "The Carpathians," 4; Ridsdale, "How the American Army Got Its Wood," 1144.
18. "In Memoriam," in Simmons and Davies, *Twentieth Engineers, France*.
19. William Greeley, "The American Lumberjack in France," *American Forestry*, June 1919, 1094.
20. The quote is from a letter from Greeley to Percival S. Ridsdale, the *American Forestry* editor and treasurer of the Welfare Fund for Lumbermen and Foresters in War Service, in "Jobs for Returning Lumbermen and Foresters," *American Forestry*, June 1919, 1159.
21. "Timeline of Events," <https://foresthistory.org/digital-collections/world-war-10th-20th-forestry-engineers/>.
22. "Jobs for Returning Lumbermen and Foresters," 1159.
23. Graves, "Graves Describes Work of Forest Regiments," 36.
24. Ralph Faulkner, "A Lesson from France," *American Forestry*, June 1919, 1155–57.
25. Theodore S. Woolsey, *Studies in French Forestry* (New York: John Wiley & Sons, 1920), 4–5.
26. William B. Greeley, *Forests and Men* (Garden City, NY: Doubleday, 1951), 91.
27. David A. Clary, *Timber and the Forest Service* (Lawrence: University Press of Kansas, 1986), 70–71.
28. Harold K. Steen, *The U.S. Forest Service: A History* (Seattle: University of Washington Press, 1976), 142.

